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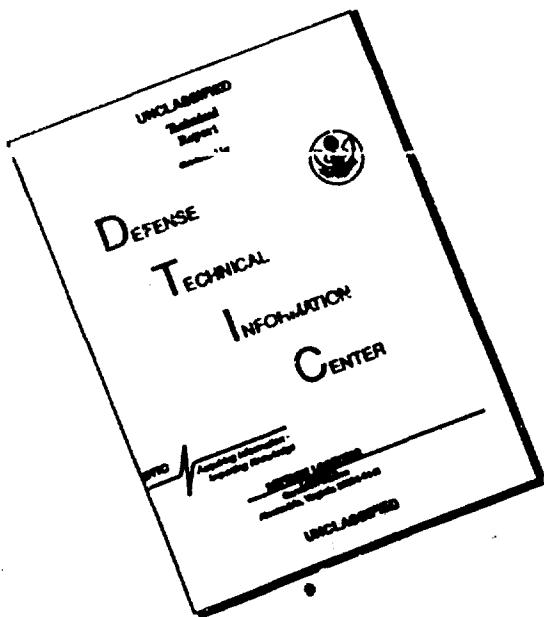
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CHARACTERISTICS OF IMMUNITY FOLLOWING
CUTANEOUS VACCINATION AND REVACCINATION
WITH VACCINE FROM STRAIN BR. ABORTUS 104-M

/Following is an abstract of their own article by I.F. Taran, A.M. Polyakova, N.M. Nelyapin, and Ye. A. Lunina of the Scientific Research Antiplague Institute of the Caucasus and Transcaucasus in the Russian-language periodical Zhurnal mikrobiologii, epidemiologii, i immunobiologii (Journal of Microbiology, Epidemiology, and Immunobiology), No 6, 1963, page 128. The article was submitted on 5 February 1962./

Report II. A Check of the Intensity of the Immunity
Created by Vaccine from Strain Br. Abortus 104-M Following
Cutaneous Application in Tests on Guinea Pigs.

The intensity of immunity at various stages after the vaccination of guinea pigs with vaccine from strain Br. abortus 104-M was studied (the method of application of the preparation and the investigation of the test animals were described in Report I). The intensity of immunity was checked by means of the subcutaneous infection of animals with a virulent culture of strain Br. melitensis 548 in doses of 20, 100, and 1000 microbial cells, which corresponded to 2, 10, and 100 infecting doses for the guinea pigs. In the test 160 guinea pigs weighing 250-300 grams were used; they were immunized epidermically with a vaccine in doses of 1 and 5 billion microbe cells. The intensity of immunity was checked at 1, 3, 6, 9, and 12 months after vaccination.

As a result of an immunological investigation it was established that Wright's reaction was most sharply expressed in animals which were infected 1 month after vaccination (1:2560). At later periods agglutinins in the blood of the test animals appeared in lesser titers (from 1: 360 to 1:20). With an increase of the infecting dose to 1,000 microbe cells the titers of the agglutinins increased to 1:640.

In checking the immunity one month after vaccination a virulent culture was isolated from 1 of 30 test animals; in 27 guinea pigs the vaccine strain was isolated while the organs of two animals were sterile. The most expressed immunity was observed in the group of animals which had been inoculated with 5 billion microbe cells for the period from the third to the ninth month. By 12 months the intensity of immunity had dropped noticeably in the animals of both groups.

The most expressed morphological changes were observed in the organs of the animals which were infected one month after vaccination. Extensive proliferates of epithelial cells with necroses in the lymph nodes were noted; in the liver there was strong hyperplasia of the Kupffer cells with the presence of large accumulations of lymphoid and histiocytic elements around the sinuses and the appearance of sectors of necrobiosis of the liver cells in the parenchyma. At 6, 9, and 12 months after vaccination, along with a strong cellular reaction, the proliferation of cicatrical tissue began. In the case of a weakening of the immunity the morphological picture, regardless of the dose and time of infection, was characterized by profound changes which were almost the same as the changes observed in the lymph nodes and internal organs of infected unvaccinated animals.

On the basis of these investigations it is possible to conclude that immunity in the case of brucellosis has more of a blocking nature and is able only to handle small doses of an infectious source immediately after their introduction. Even at the optimum times (6 and 9 months) the intensity of immunity remains relative. All this indicates that although vaccine strain Br. abortus 104-M is more immunogenic than vaccine Br. abortus 19, its use does not give a final solution to the problem of the specific prevention of brucellosis.

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